



Docket No.: 61282-072

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Customer Number: 20277
Adrian Martin STEEL, et al. : Confirmation Number: 3794
Serial No.: 10/813,428 : Group Art Unit: 2681
Filed: March 31, 2004 : Examiner:
For: DIGITAL RECEIVER WITH AURAL INTERFACE

TRANSMITTAL OF CERTIFIED PRIORITY DOCUMENT

Mail Stop CPD
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

At the time the above application was filed, priority was claimed based on the following application:

Great Britain Patent Application No. 0307451.5, filed on March 31, 2003.

A copy of each priority application listed above is enclosed.

Respectfully submitted,

MCDERMOTT WILL & EMERY LLP

Ramyar M. Farid
Registration No. 46,692

600 13th Street, N.W.
Washington, DC 20005-3096
202.756.8000 RMF:gav
Facsimile: 202.756.8087
Date: August 13, 2004

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Adrian Martin ~~SM~~, et al
August 13, 2004

McDermott Will & Emery LLP
ATTORNEYS AT LAW
INVESTORS IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

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Signed

Adrian Martin

Dated 14 June 2004

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The Patent Office

Cardiff Road
Newport
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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

ABC/21271

2. Patent application number

(The Patent Office will fill in this part)

0307451.5

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Matsushita Electric Industrial Co. Ltd.

Patents ADP number (if you know it)

1006 Oaza Kadoma
Kadoma-shi
Osaka 571-8501
Japan

If the applicant is a corporate body, give the country/state of its incorporation

a Japanese company

591 842002

4. Title of the invention

Digital Receiver with Aural Interface

5. Name of your agent (if you have one)

A A THORNTON & CO

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

235 HIGH HOLBORN
LONDON WC1V 7LE

Patents ADP number (if you know it)

0000075001 ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

Yes

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

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Continuation sheets of this form

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Abstract -

Drawing(s) 1

8

10. If you are also filing any of the following, state how many against each item.

Priority documents -

Translations of priority documents -

Statement of inventorship and right to grant of a patent (Patents Form 7/77) -

Request for preliminary examination and search (Patents Form 9/77) 1

Request for substantive examination (Patents Form 10/77) -

Any other documents (please specify) -

11. I/We request the grant of a patent on the basis of this application.

Signature *A. A. Thornton & Co.* Date

A. A. Thornton & Co. 31.03.03

12. Name and daytime telephone number of person to contact in the United Kingdom Andrew B. CRAWFORD - 020 7440 6854

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In order that the present invention be more readily understood, an embodiment thereof will now be described by way of example with reference to the accompanying drawings which shows a block diagrammatic representation of a digital radio receiver provided with an aural interface.

5 The preferred embodiment of the present invention is a digital radio receiver which is shown diagrammatically in Fig 1. The receiver comprises an antenna 10 for receiving a digital audio broadcast. The received signals are demodulated in a demodulator 11 and then input to an audio decoder circuit 12. This circuit is required because the received signals are in a compressed, coded
10 form and need to be decompressed and decoded before being output to a digital to analog converter circuit 14 which sends appropriate signals to one or more speakers 15. The demodulator 11, audio decoder 12 and digital to analog converter 14 are all controlled by a central processing unit 15 which receives user specific inputs from a control panel 17 and also controls a display 18. Thus far,
15 the digital radio receiver is conventional. However, such a radio receiver is not ideal for a visually impaired user in view of the fact that many of the controls may be confusingly similar to the touch and the displays are often relatively small LCD displays which are sometimes difficult to read in certain light conditions. While a visually impaired user can often remember the location and function of the
20 controls, there are situations where in fact the same physical controls can have their actual function altered by a menu system and the altered functions are in fact displayed on the display 18. In these circumstances, it is relatively easy for a visually impaired user to become confused.

 The present embodiment is provided with a storage device 20 which stores
25 a plurality of audio clips represented by a stack 21. When the user operates one of the controls on the control panel 17, this results in a request being sent to the CPU in order to achieve the desired function. The CPU then causes the desired function

DIGITAL RECEIVER WITH AURAL INTERFACE

The present invention relates to an aural interface system for use with digital receivers such as digital radio receivers.

5 Users of digital radios rely on visual and physical interfaces to know what services and/or content is available or the results of operating the controls. Additionally, there is another increasing range of data services available to digital receiving equipment. Most receivers will display user options using a visual method incorporating an LCD or graphical display and require the user to press
10 buttons, manipulate a cursor or use some other user input method relating to the graphical data in order to control the receiver functions. A disadvantage of this arrangement is that it is not convenient for visually impaired users who are potentially the major benefactors of new data services and advanced digital broadcast facilities.

15 It is known to provide set top boxes with an audio output facility whereby visually impaired users can use the facilities offered by the set top box for example to navigate their way through an electronic on-screen program guide. Also, it is known to provide DVDs with audio navigation which allows visually impaired users to access all of the DVD's features.

20 The present invention proposes to enhance these facilities by storing in the receiver brief audio sound clips relating to the normal operation of the receiver apparatus.

 The advantage of this arrangement is that the existing specific features and facilities already largely existing in any digital radio receiver are exploited to the
25 full.

 Further, it is possible that the audio clip can be very efficiently sent using a digital radio transmission to be replayed when necessary.

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a mobile phone or PDA. It could also be a software decoder running in a host controller.

For example, the audio clips may be broadcast in a format that cannot be decoded by the existing radio decoder. Typically a digital radio has an audio decoder which for DAB is MP1 layer 2 or MP2. However some users may wish to send the audio clips in a more advanced format such as MP3 or AAC or some other compression system so that the clips take up less memory. The decoder used for the DAB may not be able to decode such clips. However if the radio was built into a product such as a mobile phone, it might be possible to use the phone's eg MP3 decoder to decode an audio clip sent with the digital broadcast.

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to occur but also causes the appropriate audio clip to be selected from the stack 21 and played to the user.

The audio clips can be pre-recorded and loaded in to the radio receiver during manufacture. However, the audio clips can be updated dynamically via the
5 digital broadcast itself in order to make an audio clip highly recognisable. For example, when the station "Capital Radio" is selected, an audio clip containing the voice of a presenter from that radio station can be played identifying the fact that Capital Radio has been selected making the user experience more personalised.

It is also possible for well known personalities to record clips relating to
10 standard functions such as a volume up/down or next service so that a user could select those audio clips provided by their radio station or personality to be used for these commands.

It will be appreciated that the audio clips can be in any one of a number of languages which can be selected freely by the user.

15 The system can also be extended to allow the broadcaster to load a set of audio clips into a radio receiver and then replay a specific one of these radio clips whenever an appropriate signal is transmitted by the broadcaster or a specific command request by a user. For example, an electronic program guide could be broadcast and audio clips also supplied with short and long descriptions of each
20 program item. Alternatively, signals embedded in the data stream associated with a broadcast could trigger specific audio clips such as "news about to be broadcast" or "next program is the shipping news".

In the case where the audio clips can be updated dynamically via the broadcast itself it should be noted that the decoder for the audio clips need not be
25 the same one as that used for the digital radio. It could be a separate decoder dedicated for the task or it could be running in a different part of the system, eg in

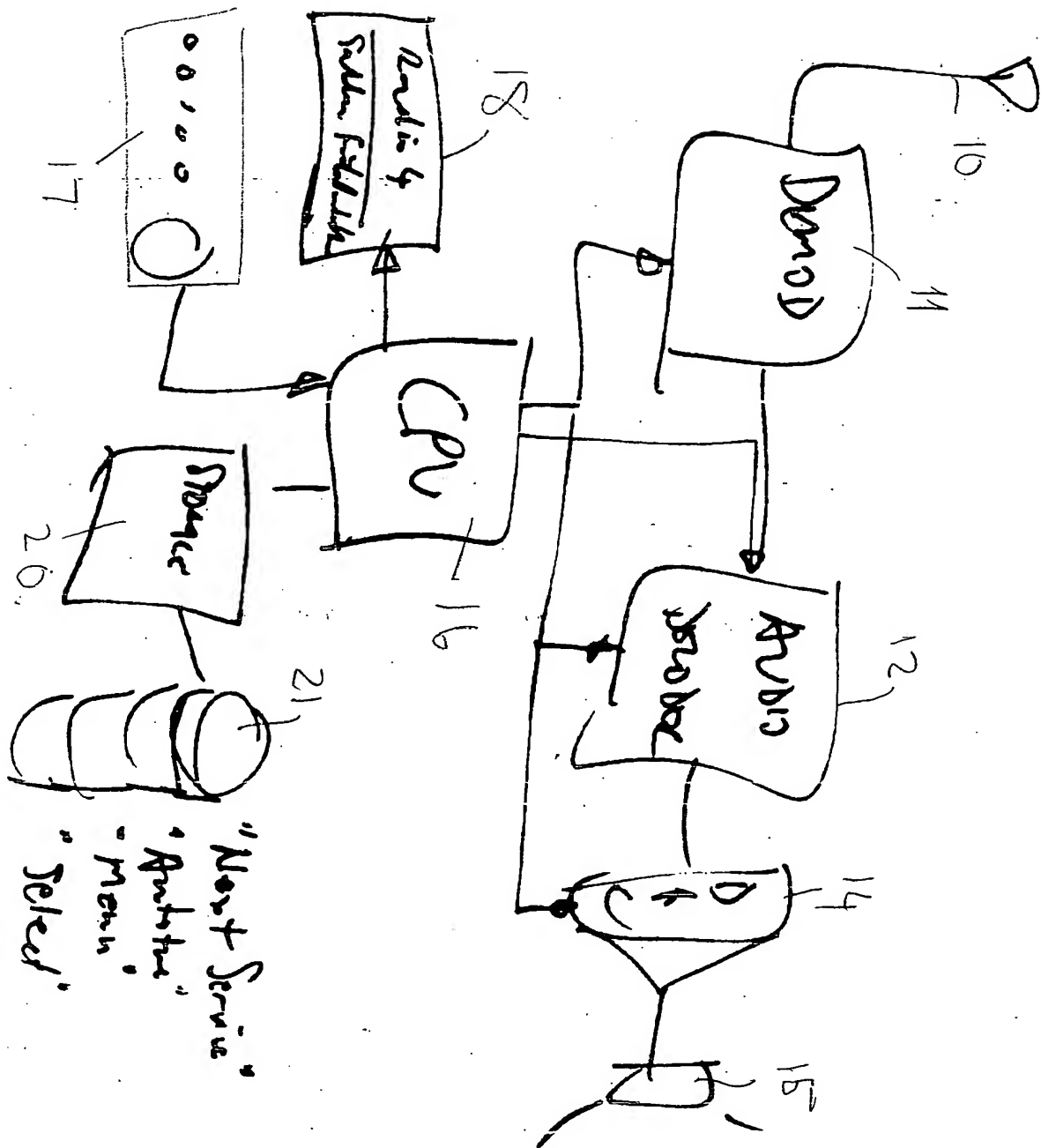
CLAIMS:

1. A digital receiver comprising means for receiving a plurality of digital signals, representing a plurality of different programs, means for selecting the digital signals representing a specific program, user operable means for controlling the selecting means, means for storing a plurality of audio signals in the same format as the received digital signals, and means for reading one of the stored audio signals simultaneously with carrying out the desired operation determined by the user operable means.
5
2. A receiver according to claim 1, where the storing means is used by the receiver for additional functions.
10
3. A receiver according to claim 1 or 2, wherein the receiving means is arranged to receive digital audio broadcast signals.
15
4. A receiver according to claim 3, wherein the receiving means is arranged to receive and detect control signals contained in the broadcast signals in order to read one of the stored audio signals.
20
5. A receiver according to claim 3 or 4 wherein the stored audio signals represent different radio stations.
6. A receiver according to claim 3, 4 or 5 wherein the stored audio signals include signals relating to volume function.
25

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7. A receiver as claimed in any preceding claim in which the stored audio signals contain information relating to the operation of the receiver.
-
8. A receiver as claimed in claim 7 in which the receiving means is arranged
5 to decode and store audio signals contained in the broadcast signals.
9. A receiver as claimed in claim 8 in which the audio signals are decoded separately from the remainder of the broadcast signals.

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